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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,711	11/08/2001	David Jay Smith	1313/1H649-US1	2757

7590

01/03/2003

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EXAMINER

KUMAR, PREETI

ART UNIT

PAPER NUMBER

1751

DATE MAILED: 01/03/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/010,711

Applicant(s)

SMITH ET AL.

Examiner

Preeti Kumar

Art Unit

1751

-- Th MAILING DATE of this communication appears on the cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-138 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8 and 33-37 and 53-79 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-138 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) ✓ ✓
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-138 are pending.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-7, drawn to cellulose fiber, classified in class 8, subclass 120.
 - II. Claims 8, 33-79, drawn to crosslinked cellulose fiber, classified in class 8, subclass 116.1.
 - III. Claims 9-22, 87, drawn to absorbent structure, classified in class 604, subclass 362, 368.
 - IV. Claims 23-31, drawn to a method for preparing cellulose fiber, classified in class 8, subclass 115.51.
 - V. Claims 32, 134, drawn to a method of preparing an absorbent structure, classified in class 523, subclass 201.
 - VI. Claims 80-86, drawn to uncrosslinked fibers, classified in class 8, subclass 115.51.
 - VII. Claims 88-125, drawn to a method of preparing crosslinked cellulose fiber, classified in class 8, subclass 120.
 - VIII. Claims 126-133, drawn to a method of making uncrosslinked fibers, classified in class 523, subclass 201
 - IX. Claims 135-138, drawn to an absorbent core, classified in class 604, subclass 372.

3. Inventions I-IX are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions encompass cellulose fibers, crosslinked cellulose fibers, and uncrosslinked cellulose fibers and methods for making the same. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. This application contains claims directed to the following patentably distinct species of the claimed invention: Currently, claim 33 is generic to a plurality of disclosed patentably distinct species comprising dicarboxylic acids. Claim 37 is generic to a plurality of disclosed patentably distinct species comprising saturated dicarboxylic acids. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, even though this requirement is traversed. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

5. During a telephone conversation with Jay Lessler on October 24, 2002 a provisional election was made without traverse to prosecute the invention of group II, claims 8, 33-79. Affirmation of this election must be made by applicant in replying to

Art Unit: 1751

this Office action. Claims 1-7, 9-32 and 80-138 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. In accordance with the election of species requirement, Jay Lessler on 10/25/2002 elected saturated dicarboxylic acid (claim 33) and oxalic acid (claim 37). Furthermore, claims 38-52 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected species.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 8 and 33-37 and 53-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang et al. (US 5,728,771).

Tang et al. teach durable press fabric finishing without the generation of formaldehyde by means of a cellulose crosslinking system containing polyphosphinocarboxylic acid and a catalyst. The durable press finishing of the present

invention provides durable press performance and they also exhibit from about 10 to about 20 percent better retention of fabric strength. See col.1, ln.60 to col.2, ln.5.

Specifically regarding claims 33-37 and 68-70, Tang et al. teach that the formaldehyde-free durable press crosslinking system comprises a mixture of a polyphosphinocarboxylic acid and an esterification catalyst. Polyphosphinoacrylic acid may be prepared by the reaction of acrylic acid and sodium hypophosphite in the presence of a free radical initiator. For example, low molecular weight polyphosphinoacrylic acid may be prepared by slow addition of acrylic acid to an aqueous solution of sodium hypophosphite containing a catalytic amount of potassium persulfate at 90° C. to 95° C. under nitrogen atmosphere. The preferred polyphosphinoacrylic acids have a molecular weight less than 8000, e.g. 300 to 5000. Reaction products prepared at 40 percent solids are clear to slightly hazy aqueous solutions with a pH of 2.5 to 3.0. By varying the concentration of sodium hypophosphite and rate of acrylic acid addition, products having molecular weights from 1500 to 5000 are readily obtained. See col.2, ln.5-30. Esterification catalysts may include oxalic acid, phosphonic acids, organic phosphonates, alkali metal sulfides, para-toluene sulfonic acid, and acidic or weakly basic salts such as alkali metal dihydrogen phosphates and alkali metal salts of a phosphorus-containing acid such as phosphorous acid, hypophosphorous acid and polyphosphoric acid. See col.2, ln.35-40.

Specifically regarding claims 53-59, Tang et al. teach that the amount of catalyst used is that amount which is effective to catalyze the esterification reaction which crosslinks the cellulose, i.e. a catalytic amount. Generally, from 1 to 25 weight percent,

Art Unit: 1751

e.g. 4 to 12 weight percent, of the catalyst based on the durable press composition may be useful. A ratio of 3:1 sodium monophosphate to sodium hypophosphite is preferred, particularly when the catalyst is used in the preferred range of 4 to 12 percent based on the weight of the durable press composition, i.e. the aqueous solution. See col.2, ln.57-67.

Specifically regarding claims 65-67, Tang et al. teach that the fabric may be dried and cured in two steps, but is conventionally "flash-cured" in one step by heating at a sufficient temperature for a sufficient time to crosslink the cellulose fibers. Generally, temperatures between about 130° C. and 200° C. may be used. Typically, a temperature of from about 155° C. to about 185° C. for a period of about 3 to about 10 minutes is sufficient. A preferred cure cycle is 170° C. to 175° C. for about 5 to 10 minutes. See col.4, ln.25-40

Tang et al. do not specifically teach crosslinked cellulose fibers having the specified refined freeness value, and water retention value, and median desorption pressure as recited by the instant claims.

However, it would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to formulate a crosslinked cellulose fibers using oxalic acid as the cross-linking agent as recited by the instant claims with a reasonable expectation of success, because the teachings of Tang et al. suggest a method of making crosslinked cellulose fibers wherein the esterification catalyst is oxalic acid. Although Tang et al. are silent as to the cellulose fiber refined freeness value, and water retention value, and median desorption pressure, one of ordinary skill in the art

Art Unit: 1751

would expect the crosslinked cellulose fibers of Tang et al. to encompass these properties within the specified range because Tang et al. suggest a crosslinking system comprising oxalic acid in general.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Remaining references cited but not relied upon are considered to be cumulative to or less pertinent than those relied upon or discussed above.

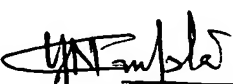
Applicant is reminded that any evidence to be presented in accordance with 37 CFR 1.131 or 1.132 should be submitted before final rejection in order to be considered timely. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Preeti Kumar whose telephone number is 703-305-0178. The examiner can normally be reached on M-F 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 703-308-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-872-9309.

PK
December 26, 2002

Preeti Kumar
Examiner
Art Unit 1751


YOGENDRA N. GUPTA
SUPERVISORY PATENT EXAMINER
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